INTONATION PATTERNS IN ENGLISH AND MANDARIN CHINESE
WITH SPECIAL REFERENCE TO THE ROLE OR PITCH
IN SIGNALLING QUESTION

by

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CONTENTS

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INTRODUCTION

1.0 Statement of the Problem

This paper attempts a theoretical discussion, on the basis of con-
trastive linguistic analysis of English and Mandarin intonation systems,
of potential difficulties faced by a Mandarin speaker learning English
intonation patterns. We will single out for this purpose one of the more
common and persistent problems experienced by Mandarin speakers learning
English, namely the role of pitch in signalling English questions. Teach-
ing this subtle aspect of the language has been one of the most difficult
tasks for the teacher of English to Chinese.

1.1 It is to be assumed that each language has its own arbitrary
system of speech melodies into which a native speaker unconsciously
categorizes himself.[1] As a corollary to this, when one learns a foreign
language, the linguistic habit of one's mother tongue causes an inter-
ference and as a result, one's speech becomes unintelligible or sounds
unnatural to native speakers of the new language. Native speakers of
Mandarin, for example, frequently confuse English consonant clusters.
This is due to the influence of the linguistic habit of Chinese, since
in Mandarin there are no consonant clusters. The word ox (pronounced
/aks/) has only one syllable in English, but many Chinese students pro-
nounce it with three, i.e., /akəsə/. Deviations of a foreigner's intona-
tion from the normal speech melody of a given language are also often
traceable to the speech habit of his mother tongue.[2]

1.2 The fundamental idea of the present work is based on a state-
ment given by Fries as follows: "The most effective materials are those
that are based on a scientific description of the language to be learned,
carefully compared with a parallel description of the native language of
the learner."[3] Such contrastive analysis enables one to identify the
learner's problems and to place the emphases where they must be. We
assume that the student, when he comes in contact with a foreign langu-
age, will find some features of the new language quite easy and others
extremely difficult. Those elements that are similar to his native
language will be simple for him, and those elements that are different
will be difficult.[4] Thus a theoretical study of verbal behavior can
have practical applications in the important work of teaching foreign
languages.

1.3 <u>Review of the Literature</u>

Reviewing the literature on English and Mandarin intonation, we find
that there are useful books for reference in this study. Some important
ones are the following:

1.4 <u>Studies of English intonation</u>: There are several works on
British and American English intonation that were published in the 20th
century. According to Lieberman,[5] three different approaches have
evolved since 1900. One approach, typified by the British school that
has become identified with Daniel Jones, has made use of suprasegmental
"tunes" that, on the acoustic level, are quite similar to the breath-
group. The second approach, which also has been largely identified with
British phoneticians, has described pitch contours by means of "tones"
that occur on specific vowels. The sequence of those that may rise and

fall determines the intonation pattern of the utterance. The third
approach has been developed principally by American linguists who tried
to apply the segmental techniques of taxonomic phonemics to intonation.
In these studies intonation has been analazed in terms of stress, pitch,
and junctural phenomena.

1.5 The first important treatment of the subject, is Daniel Jones'[6]
Intonation Curves. He performed a quasi-instrumental study of intonation.
Each syllable has a bar on the musical staff and the musical pitch is
recorded on the staff with reference to the usual musical values. Jones'
The Pronunciation of English indicated the intonation by means of musical
notes and in curves showing positions of pitch in relation to the speaker's
lowest pitch of voice. Musical notations are also used in the early
editions of Jones' Outlines of English Phonetics, but in later editions
the author contents himself with the system of dots and lines. Palmer
and Blandford[7] give detailed descriptions of several types of intonations.
They also set up an excellent system of symbols which has served as a
basis for the system of tonic notation. Armstrong and Wards'[8] study posited
that the linguistic aspects of intonation could be transcribed in terms
of two tunes and pitch and breath-force deviations from the two tunes.
The principal effects of Bloomfield's[9] work were to channel subsequent
studies toward the isolation of these "pitch phonemes" and the explicit
characterization of their role in defining syntactic "constructions".
Bloch and Trager[10] in their section on phonetic analysis briefly discuss
the "...PROSODIC FEATURES OF QUANTITY, STRESS, AND TONE: the last two
are grouped together as "features of accent". Wells[11] specifies that
"There are four phonemes designated by Arabic numerals from 1 (lowest)

to 4 (highest)." Pike[12] describes the intonation of American English
in terms of four pitch levels and two "pauses". Trager and Smith[13]
analyze the intonation in terms of stress, pitch, and junctural pheno-
mena. The great value of their analysis is that it correctly noticed
that the intonation of an utterance could reflect its immediate consti-
tuent structure. Harris[14] attempted to analyze intonation in terms of
suprasegmental morphemes. Bollinger[15] schematized the stress system
in three levels--accented, stressed, and long syllable. He suggests
focus on syllable types in teaching a foreign language. Engler and
Haden[16] match the syntactic structure with intonation contour. Lee[17]
describes some features of the intonation of questions.

1.6 Studies in Mandarin intonation: Most writing about the phono-
logy of Mandarin that is based on scientific principles goes back to
Bernhard Karlgren.[18] He gives an introduction to phonetics and a
thorough consideration of tones of different dialects. Some of the
missionaries in China have produced practical texts and useful descrip-
tions of various aspects of Mandarin Chinese. The texts of Evan Morgan[19]
and W. H. Baller[20] may be in this group.

1.7 Two recent teaching texts, using very different approaches,
illustrate the divergence in viewpoint possible in the matter of teaching
Mandarin to foreigners. The first, published in 1943 by the California
College in China, introduces the study of Mandarin through reading and
pronunciation of the complex system of characters. At the opposite
extreme, Spoken Chinese[21] of the Holt language series has a completely
oral/aural approach as an introduction to the study of Mandarin.

1.8 Narrowing down to the tone and intonation of Mandarin, the

works of Chao[22] and Shen[23] are considered two of the most important
sources in the field. Professor Chao's Mandarin Primer and Tone and
Intonation in Chinese are the most reliable sources of information
about the system of tone sandhi and sentence intonation. Shen points
out the different meanings of tones, intonation and inflection. She
also discusses some suprasegmental features of Mandarin Chinese and
Japanese. Fries and Shen[24] give an introduction to tones in their
lecture to Mandarin Chinese for English Speakers. Martin[25] studies the
problems of hierarchy and indeterminacy in Mandarin phonology. He gives
us six tone phonemes and two "successive" phonemes of intonation in
Mandarin. Hockett[26] discusses general Peiping phonology and morpho-
phonemics. Weingartner's[27] paper is a report on research done on the
loudness of Chinese morphemes. Pike[28] discusses the general character-
istics of tones, both phonologically and morphologically. Wong[29] attempts
to analyze the phonemes and tones of spoken Mandarin Chinese in terms of
distinctive features.

1.9 Contrastive analysis of English and Mandarin: Reviewing the
literature of the previous work on the contrastive anlaysis of the two
languages, we find only a few books or articles for reference in this
study. Fries and Shen[30] point out the problems of English pronunciation
for speakers of Mandarin, but they do not describe the cause and nature
of each difficulty. Cochran and Lin[31] give an account of Mandarin tones
and English pitch patterns. They list the similarities and differences
of English and Mandarin phonemes, but without further detailed explana-
tions. Chen[32] has a brief description on suprasegmental phonemes in
English and Taiwanese. Shen[33] presents some pitch pattern correlations

between English and Mandarin. Woo[34] indicates the regular English speech tones and their correlation with musical tones and Chinese tones. Lado[35] discusses techniques of comparing a tone language and an intonation language. Dreher[36] attempts to formulate and carry out an instrumental approach to the problem of intonation contours employed by speakers using both their native and an acquired language. McIntosh[37] compares the structural devices that signal the question in spoken English with Mandarin Chinese, French and German. Sprenger[38] compares the Peiping and German phonologies. Shimaoka[39] has a contrastive study on rhythm and intonation of English and Japanese with spectrographic analysis.

1.10 Justification of Study

Today, it is a rare discussion of English language teaching problems that fails to make reference to the views of modern descriptive linguistics. Much of the theoretical basis for modern methods of language teaching has been formulated on the principles of contrastive analysis between the native language and the target language. The Center for Applied Linguistics in Washington, D. C., is presently undertaking a series of contrastive studies between English and the five major European languages. The main reason for this emphasis on the structural comparison of language is, most importantly, the great need for proper teaching and learning materials bases on scientifically solid analysis and comparison of languages.

1.11 In Taiwan, teachers of English face a peculiar problem in teaching English intonation. The ordinary high school graduate comes to college with at least six years of English study behind him, and yet is still unable to speak English without a strong Mandarin accent. In

analyzing the source of this difficulty, it becomes evident that the student has not realized the differences in significant features of English and Mandarin melodies; he often speaks "English" using his own Chinese intonation rather than that of the language he is speaking. Such a student needs materials based on contrastive studies through which he may identify the significant features and develop appropriate speech habits to speak English authentically.

1.12 This present contrastive study of English and Mandarin intonation is intended to deepen the understanding of the peculiar structuring of each of the two languages and to illuminate the differences between them, and to be helpful in devising and arranging future teaching and learning materials.

1.13 Procedures of Study

The body of the report contains two main parts. The first part involves the contrastive analysis of the intonation patterns of English and Mandarin. It includes a brief discussion of stress, pitch and junctural phenomena of the two languages. The result will be rather precise predictions of problems for the teacher or learner of English, in addition to the more theoretical value of the comparison. The second part is concerned with the pitch patterns of English and Mandarin questions. This bears on one of the more common and persistent problems experienced by Mandarin speakers learning English. The bulk of material for the descriptions of the two intonational systems will be drawn from literature published by authorities in the respective fields.

1.14 At the end of each chapter is a series of drills, based on the problems that have been predicted by means of the contrastive analysis

done, and designed to help the speaker of Mandarin acquire the proper English intonation patterns. The maxim that "one learns by doing" is never more true than when applied to language study. The student must be given an opportunity to develop the easy and automatic habit of letting his ideas flow spontaneously into the proper English pattern by drill, drill, and more drill. He must drill the patterns of English speech until they become automatic and second nature.

CHAPTER II

CONTRASTIVE ANALYSIS OF THE INTONATION PATTERNS

OF ENGLISH AND MANDARIN

2.0 Intonation Patterns in English

Intonation is defined as the contour or melody with which utterances
are spoken. To understand English intonation patterns we must identify
stress, pitch and junctural phenomena. Our concern now is to isolate and
describe some of the essential features of English intonation as well as
to indicate their methods of representation.

2.01 Stress: Stress is the amount of. intensity or prominence with
which a syllable is pronounced. It seems to include factors of amplitude,
frequency and duration. There are four stress phonemes in English which
are called primary /′/, secondary /ˆ/, tertiary /ˋ/, and weak /˘/. Stress
can determine meaning in such pairs of words as 'pérvert' (noun) and
'pervért' (verb); 'pérfume' (noun) and 'perfúme' (verb). In his discus-
sion of English stress, Francis states:

> In phonetics we recognize four degrees of stress...
> These four degrees of stress are actually phonemes,
> whose allophones are the various minute gradations
> of stress perceptible in actual speech. Stress phonemes
> are established in much the same way segmental phonemes
> are: by studying distribution and contrast. Several
> independent studies have come to the same conclusion:
> that there are four distinct phonemes of stress in
> English.[40]

2.02 Pitch: Another important factor in intonation is the feature
of pitch. In English, four relative but significant levels (pitch phonemes)
can be found which serve as the basic building blocks for intonation

contours.[41] They are symbolized by the numbers, 1 (low), 2 (mid), 3 (high), 4 (extra high). The normal pitch level for each of us is the mid level. The high pitch level is normally used for the stressed points of the utterance. The extra high pitch level is usually reserved for very special emphasis and the low pitch level is commonly used for the unstressed and lesser stressed syllables toward the end of the utterance. In English, pitch is distributed over phrases and sentences.[42] For instance, "You're in New York?" with a rising pitch-pattern is a question. The pitch-pattern makes a difference in meaning between word-groups rather than words.

2.03 <u>Junctures</u>: In addition to the stress and pitch phonemes of English, another important phenomenon in intonation is the feature of junctures. According to Hill,[43] "an utterance does not necessarily become understandable even when all its vowels, consonants, and stress patterns have been recognized. It is still necessary to recognize where the boundaries fall." These boundary signals are called junctures, and it is these which we are about to describe. We have three different terminal junctures which may occur at the end of phrases, clauses, or sentences. These are the sustained juncture /→/, the rising juncture /↑/, and the fading juncture /↓/. They are indicated also by the marks /|/, /||/, and /#/, and called 'single bar', 'double bar', and 'double cross' respectively. There is also an internal open juncture or plus juncture indicated by the mark /+/. It occurs within the borders of a phrase and can not occur at the end of either sentence or phrase. It is the break that is often heard between words and between parts of words. Like the terminal junctures, it is phonemic, as this minimal pair will

shown <u>ideal</u> /aydíyl/ and <u>I deal</u> /ay + diyl/. English has a variety of word lengths and shifting transition boundaries.[44] It is less obvious in identifying the word units in actual utterances than Mandarin.

2.1 Stress, pitch, and juncture phonemes all work together to comprise intonation patterns. Every sentence, as well as some grammatical word-group units, within a sentence has its own intonation pattern. In symbolizing patterns we indicate the pitch levels at three places: 1) the beginning of the grammatical unit, 2) the beginning of the syllable bearing the primary stress, and 3) the end of the unit before the terminal[45]. There will be one primary stress over each grammatical unit.

2.2 We are ready to examine some of the more commonly used intonation patterns in American English, and the kinds of grammatical units they accompany. The intonation pattern is enclosed in phonemic slashes with one primary stress, three pitch level digits and a terminal.

2.21 <u>Rising falling intonation</u> /2 ʒ 1↓/: This is one of the most frequent intonation patterns in English. It signals that the utterance is complete. It is normally used in the following situations:

1) <u>Simple statement</u> <u>of</u> <u>fact</u>:

   Ex. /2   ʒ   1↓/

   The man is a professor.

2) <u>Question word questions</u>: (who, what, which, etc.)

   Ex. /2   ʒ   1↓/

   What is this?

3) "<u>20 questions</u>" (a kind of game): "Is it animal? Is it vegetable?" all with this pattern. Apart from that, it is reportedly quite common in some

parts of the United States as a "yes or no"

question.[46]

Ex. /2 3̌ 1↓/

  Is it animal?

2.22 <u>Rising</u> intonation /2 3̌ 3 ↑/: This rising intonation is nor-
mally used whenever we ask a question that may take a "yes or no" answer.
It is often used in the following situations:

 1) <u>"Yes or No"</u> questions:

  (1) <u>In statement form</u>: (also occurs in "echo"

  questions)

  Ex. /2 3̌ 3↑/

    He is a student?

  (2) <u>In question form</u>:

  Ex. /2 3̌ 3↑/

    Is he a student?

 2) <u>Alternative questions</u>:

  Ex. /2   3̌ 3 3̌ 3 ↑/

    Will you have tea, milk, (or coffee)?

 3) <u>Tag questions</u>:

  Ex.   /2 3̌ 3 1↑/

    (She is at home,) isn't she?

    (She isn't at home,) is she?

 4) <u>Initial grammatical unit</u> (phrase or clause)

  Ex. /2 3̌ 3 ↑/

    In short,...

2.23 <u>Falling</u> intonation /3̌ 2 1 ↓/: This falling intonation often

occurs in the imperative sentence.[47]

Ex. /3   2   1↓/

Don't close the door /

2.24 <u>Sustained intonation /2 3 2→/</u>: This pattern signals incompleteness. It is usually used in the following situations:

1) <u>Initial phrase or clause:</u>

   Ex. /2   3   2→/

   Under the circumstances...

2) <u>Statement:</u> It indicates that the speaker has
   more to say: Often the word following this
   pattern is "but".[48]

   Ex. /2   3   2→2   3   1↓/

   I hear the noise, but I can't locate the source.

2.3 The intonation patterns described above have not imparted any particular social implication to the whole expression. We consider any departure from the formula, either as to placement or degree of stress, or placement or height of pitch, as signalling <u>Accent</u>.[49] One way to get special emphasis is to give primary stress and a higher pitch (most likely to pitch level /4/) to the word we wish to emphasize. The sentence 'I have two good friends.' (2 3 1 ↓/) appears to be colorless intonation. If an American wants to emphasize that he has two good friends (not children etc.) he increases the range of pitch and stress (also increase of length) on <u>friend</u>[50]. Likewise, he may put this special emphasis on any of the other words of the sentence by shifting the center of the intonation to this particular word: 'I have TWO friends'. In their discussion regarding the roles of stress and intonation, Armstrong

and Ward state:

> The meaning of words or sentences can be intensified.
> 1. By simply increasing the stress on the normally stressed syllables, the intonation remaining the same as for unemphatic utterance.
> 2. By widening the range of intonation of the whole sentence (in addition to increasing stress).
> 3. By lowering and narrowing the range of intonation (in addition to increasing stress).[51]

2.4 Tone and Intonation in Mandarin

In the domain of pitch phenomena, Mandarin has tone and intonation. On the lexical level, tone distinguishes the meaning of one word from that of an otherwise homophonous word. It is generally recognized that Mandarin is a language having at least four tones. Chao says:

> A Chinese word is what it is, not only in having its constituent consonants and vowels, but also in having its constituent tone. The word gai 'ought' with high level tone and the word gai 'to cover' with identical consonant and vowel but with a high falling tone, are as different for Chinese speakers as bad and bed for English speakers.[52]

2.5 The four tones of stressed syllables and the so-called "half third" tone are represented by the following figure: (We will discuss the 53 and the tone 21 later)

_ Level	Pitch	Tone	Description	Graph
High	5——→5	1st (55)	High-level	→
Half high	4 ⟋ 4	2nd (35)	High-rising	⟋
Middle	3 ⟍⟋ 3	3rd (214)	Low-dipping	⟍⟋
Half low	2 ⟍ 2	4th (51)	High-falling	⟍
Low	1 ⟍⟋ 1	Half 3rd (21)	Low-falling	⟍⟋

[53]

In this figure the range of a speakers voice is divided into four equal intervals by means of numbers on the right and left side, and verbal description on the left side. The arrows indicate the movement of the tone (one level tone 55 and three gliding tones, 35, 214, and 51), showing their starting and ending pitches and their general direction. The tones

are referred to as 1st tone /ˉ/, 2nd tone /ˊ/, 3rd tone /ˇ/, and 4th tone /ˋ/. Phonemic contrast between the four tonal phonemes may be demonstrated by the following words: /mā/ 'mother', /má/ 'numb', /mǎ/ 'horse', and /mà/ 'to scold'.

2,6 _The Neutral Tone_: "When a syllable is completely unstressed, its tone disappears and is said to be atonic or in the neutral tone."[54] We mark it by placing a dot before the syllable so pronounced /./. The actual pitch level of such a neutral tone depends upon the tonal environment and thus has no phonemic status of its own. According to Chao, neutral pitch varies as follows:

After 1st tone	half-low	tā .de	'his'
After 2nd tone	middle	shéir .de	'whose'
After 3rd tone	half-high	nǐ .de	'yours'
After 4th tone	low	dàh .de	'big one (s)' [55]

The occurrence of neutral tone is limited to unstressed syllables. As a rule, it falls into two categories: (1) grammatical expressions such as interjections, suffixes, pronouns after verbs, reduplicated verbs etc., and (2) polyllabic expressions, in which any syllable may be unstressed except the first.

2.7 _Mandarin Tonic Stress_: According to Wong,[56] stress in Mandarin is not phonemic; each syllable of a word is moderately stressed, with the last syllable slightly more stressed than the rest. In disyllabic words without a neutral tone, the second syllable receives a heavier stress than the first, as měi kwo 'America' where the lower bar indicates secondary stress and the upper bar primary stress. When a group has three or four syllables, the last has the loudest stress, the first the next and the inside syllables have the least stress, as měi kwo rén 'American', where the double bar indicate tertiary stress. These are the principal

rules governing the distribution of stress in the Peiping dialect. We can conclude that stress in Mandarin is predictable and not phonemic.

2.8 <u>Tone Sandhi</u>: The problem is further complicated by tone sandhi--"the change in actual value of tones when syllables are spoken in succession."[57] Professor Chao considers Mandarin tone sandhi relatively simple, and he has worked out four "rules" covering most of the ordinary cases of tone adjustment.[58]

2.81 A 3rd-tone word closely followed by any word except another 3rd-tone word is pronounced without its final rise in pitch, resulting in a pure fall from half-low (or <u>21</u> as indicated on page 14). This is called the "half-3rd" tone. (i.e., <u>214</u> becomes <u>21</u>)

> Ex. 3rd + 1st: 214 + 55 ——→ 21 + 55
>
> haǔ shū 'good book'

2.82 A 4th-tone followed by a 4th-tone does not fall high to low but only to middle (i.e., <u>51</u> becomes <u>53</u>)

> Ex. 4th + 4th: 51 + 51 ——→ 53 + 51
>
> bù lèi 'not tired'

2.83 A 3rd-tone word followed by another 3rd-tone word is pronounced in the 2nd-tone. (i.e., <u>214</u> becomes <u>35</u>)

> Ex. 3rd + 3rd: 214 + 214 ——→ 35 + 214
>
> haǔ lěng 'how cold'

2.84 In a three syllable word or phrase the first syllable is a 1st or 2nd tone, the second is 2nd tone, and the third syllable is any except the neutral tone, then the 2nd syllable (which is originally in the 2nd tone) is pronounced in the 1st tone. (i.e., <u>124</u> becomes <u>114</u> etc.)

> Ex. dōng-nán fēng 'southeast wind', which is <u>121</u> ——→ <u>111</u>

2.9 <u>Mandarin Sentence Intonation</u>: Lado[59] considers that "tone languages usually have an intonation system over and above the tone system of its words. It tends to be a simple one limited to two additional pitch phonemes occuring at phrase and sentence final points."

Hockett suggested that he found something akin to sentence intonation:

> The clearest thing about intonations is their scope:
> there is usually little doubt as to where a particular
> intonation begins and ends. The exact nature and
> number of the intonations is less clear. For the last
> macrosegment of an utterance, we indicated by terminal
> /./ a lowering of pitch from nuclear stress to the end,
> and by /?/ the absence of such a fall in pitch; thus in
> short utterance: /tʰéi .ma? / 'is that right' /tʰéi .de./
> 'that right'
>
> Under /?/ we are probably lumping together several
> phonemically distinct types; possibly also several
> are covered by /./.[60]

2.10 Professor Chao moves more cautiously than Hockett in this complex territory. In a paper read at the April 20, 1933/meeting of the American Oriental Society, he outlines the problem and foresaw the lines of investigation that must follow.

> ...the actual melody or pitch movement of a tonal
> language is a different affair from the mere suc-
> cession of the few fixed tonal patterns which are
> supposed to make up the tones of that language.[61]

The report continues with three elements in the tonal pattern: (1) characteristic tones of individual syllable-words, which is usually called tone, or etymological tone; (2) their influence on each other in connected speech, or tone sandhi; (3) movement of pitch, indication the mood or attitude of the speaker, or expressive intonation, the later two forming sentence intonation. Following the data of this report, there are at least two types of tonal additions, simultaneous addition and successive addition. We shall consider these in turn.

2.11 _Intonation Phonemes in Mandarin_: We have to consider now how
it is possible for phrase intonation to exist simultaneously with the
etymological tones. Chao states:[62]

> In matter of tone sandhi...each word-tone simply acquires
> a more or less regular modification of its tonal environ-
> ment...
>
> If however, a falling tone should occur at a place where
> rising expressive intonation is called for, then we meet
> the problem of tonal addition.

When an Occidental student of Chinese says correctly:

jěi .ge dōng shî hau,↗ něi .ge dōng shî whai.↘

(This thing is good,↗ that thing is bad.↘)

and then goes on to say wrongly,

něi .ge dōng shî whai,↗ jěi .ge dōng shî hau. ↘

(That thing is bad, ↗ this thing is good. ↘)

the second utterance is incorrect in Chinese because the Occidental
student is using sentence intonation to the exclusion of word tone.

> ...but if we observe closely the intonation of such
> a succession of clauses, we shall notice even without any
> instrumental aid, that the falling tone in the suspense
> clause does not fall quite so low, and the rising tone in
> the conclusion does not rise quite so high. These tones
> are in fact the algebraic sums of resultants of two factors,
> the original word-tone, and the sentence intonation proper
> in this case a purely logical intonation.[63]

If, however, we have an example like the following,

jěi .ge whai? jěi .ge hau.↗↘

(Do you say) this is bad? It is (decidely) good.

> This first clause will also have rising intonation and
> the second a falling in Chinese, but the fall and rise
> will not be added simultaneously to the last syllables
> but will be joined on successively, after the word
> tones are completed:[64]

We have not only to ascertain what they are, but also how they are
applied to the tonal systems of the language. We shall discuss them
in turn.

2.111 *Simultaneous Phonemes*: There are four "simultaneous"
phonemes which affect the tonal range through a phrase or phrase-group
with increasing effect toward the end; these probably correspond to
Trager and Smith's "voice qualifiers". These forms are represented
in the following:

> (a) $\nearrow$ General raised level of pitch,
> (b) $\searrow$ General lowered level of pitch,
> (c) $\updownarrow$ Widening of range,
> (d) $\frac{\downarrow}{\uparrow}$ Narrowing of range,[65]

all of which may affect either the whole or a part of the intonation
group. These modifications, however, do not all apply in a simple manner
to the resultant intonation. For intonation (a), there is usually,
though not always, an accompanying (d), due probably to the greater
effort in raising the upper limit of a normal tone than the lower limit.
Intonation (b) is nearly always accompanied by (d), because the lowest
tone in a dialect being usually near the lower limit of voice, any gen-
eral lowering of pitch must result in a narrowing of the range as well.

2.112 *Successive Phonemes*: There are two "successive phonemes" of
intonation, rising ending and falling ending; these are added on the tone
of the last syllable of a phrase, and perhaps correspond to the "terminal
junctures" in terms of Trager and Smith. The effect of the "successive"
phonemes on the allophones of the various tones are given below, following
Chao, on an ascending numerical scale with 1 as the lower limit. If we
use the signs $\nearrow$ and $\searrow$ to represent these endings, we can best represent
their effects on tones by the following formula:

(1) The "rising ending," i.e., the rise in pitch applied to the last
syllable, modifies the four tones and the neutral tone as follows:

↗ 1st tone	55 to 56 ↗
↗ 2nd tone	35 to 36 ↗
↗ 3rd tone	214 to 216 ↗
↗ 4th tone	51 to 513 ∨
↗ Neutral tone (conditioned) to 5

where 6 to represent extra high pitch. As was pointed out before tone-
less syllables (unstressed) have a certain height of pitch. If the
"rising ending" is applied to such a syllable, a rising tone will be
produced whose general pitch depends on the height of the original
neutral tone (half high, low, etc.). Chao's example for the 3rd tone
may illustrate the "rising ending": /wǒ swó bù hǎu?/ 'Did I say, this
was no good?'[66]

(2) The "falling ending," i.e., the fall in pitch applied to the last
syllable, modifies the four tones and the neutral tone as follows:

∨ 1st tone	55 to 551 ↘
∨ 2nd tone	35 to 351 ∧
∨ 3rd tone	214 to 2141 ∧∨
∨ 4th tone	51 to 5121 ∨
∨ neutral tone (conditioned) to 1

When it applies to an unstressed syllable, it rises through one step
and falls to the original level (Chao's circumflex tones), except that
the unstressed tone following a 3rd tone, which is high, falls directly
downwards. The "falling ending" may be illustrated by Chao's example
for the 2nd tone: /swó tā twó yǒu chēin./ '(to tell you) How rich he
is!'[67]

2.12 Phonetically speaking the influence of the "rising ending"
and the "falling ending" upon final syllables results in a variety of
different kinds of intonation. But it seems that only the rising and

falling as such are phonemically relevant.

2.13 One more intonational feature may be added here, namely that
applied to the English and Mandarin in cases of 'special emphasis'. How
does the Mandarin handle this kind of special emphasis? In much the same
way as does the English language. In the sentence /tā hěn lèi./ "He is
very tired" we recognize only the colorless expression. If we want to
emphasize, we apply the greatest degree of prominence to the words we
wish to stress on, i.e., we widen the pitch range of that word, give it
a higher degree of loudness and lengthen it.[68]

2.14 Comparing the Intonation Patterns

According to Lado,[69] the comparison of a tone language with an into-
nation language will involve these two stages: (1) the comparison of
the minimum significant pitch units, the pitch phonemes, and the entirely
different systems of distribution of pitch. (2) the comparison of patterns
of pitch-phoneme sequences. A more detailed comparison of the English
and Mandarin will be carried through in these steps: First, the compari-
son of English and Mandarin suprasegmental phonemes--stress, pitch and
junctural phenomena. Second, the comparison of English intonation
patterns and their Mandarin equivalents. Third, summary and conclusion.

2.15 English and Mandarin Suprasegmental Phonemes

Stress: The comparison will begin with the stress phenomena of the
two languages. Stress is phonemic in English, but not significant in
Mandarin except for emotional emphasis. A Chinese speaker will meet
difficulty in approximating the English stress-timed rhythm. Primarily
stressed and weakly stressed syllables may not be clearly distinguished,
because each syllable of a word in Chinese receives a slight even stress,

the result being that stressed-timed rhythm is replaced by syllable-timed rhythm. A Mandarin speaker may say 'The man is a professor' as /ə mæ næ (ə) 'proˈfæsər ↓/. It is clearly observed that intensity is given nearly the same importance.

Pitch: The English pitch system may be said to consist of four phonemic pitch levels, while Mandarin tones were referred to as 1st tone, 2nd tone, 3rd tone, and 4th tone. They allow us to state that there are three gliding tones and one level tone. The intonational sequences of pitch in English are phonetically more or less matched by the three gliding tones of the Mandarin, where they must not be distributed over several words. We may assume that the English pitch sequence /2 1 3/ corresponds to the 3rd tone, English /4 1/ to the 4th tone, and English /2 4/ to the 2nd tone of the Peiping dialect. Going from the Mandarin with the three gliding tones and one level tone to the four pitch phonemes of English, the student will hear the level pitch phoneme system as if it were a system of glides. He will hear clearly the difference between a fall /4 1/ and a rise /2 4/, but he will not hear the difference between a rise from low to mid /1 2/ and low to high /1 4/ or between a fall from high to mid /4 2/ and one from high to half-high /4 3/. The problem is to learn to hear and to produce the pitch phonemes as significant units of patterns, which at first he hears only as undifferentiated rises and falls.[70] As for the distribution of pitch, in English it is phonemically relevant only when distributed over phrases and sentences but not over syllables. Consequently, a Chinese speaker learning English, expecting a constituent pitch to be attached to every stressed English word, will be baffled by the observation that the pitch

over certain English words may change from phrase to phrase, or even
sentence to sentence.

Junctures: For the English difference between /↓/ falling terminal
and /→/ sustained terminal, a Mandarin speaker may not be able to con-
trast one with the other clearly, as the difference between /↓/ and /→/
is not contrastive in Chinese. As we have mentioned before, Mandarin
has two successive phonemes which perhaps correspond to the "terminal
                                                                    2
junctures" in terms of Trager and Smith. For example, when /There is a
3 1↓   2   3 2→
book / is contrasted with /There's a book (but,---)/, there is a sus-
tained pitch on the end of "book" in the second example. It seems to be
difficult, however, for a Mandarin to imitate the "intonation center"
represented by /3 1↓/ which gradually fades away to a lower level and
contrasts with level and rising intonation. As for the plus juncture,
the problem may be acute for speakers of Mandarin. English has a variety
of word lengths and shifting transition boundaries, while Chinese has
mostly single syllable words with strongly marked boundaries.[71] When
Chinese learn English, they have considerable difficulty in identifying
the word units in actual utterances, because of the variety in the
length and structure of English words and the less obvious word bound-
aries, and because of the change, they undergo with different styles
of pronunciation.[72]

2.16 English Intonation Patterns and their Mandarin equivalents.

So far we have been standing on fairly solid ground in our compari-
son. Now the problems are going to become rather complex. What seems
to be the most striking difference between these two types of intonation
patterns is that the English intonation allows no major variations (the

part from the center of the intonation to the end remains basically the
same in all cases), whereas the Mandarin intonation enjoys not only many
ups and downs within the tone groups, but may also end in as many ways
as there are different tones and variations of the neutral tone.[73] Not
able to rely on variable intonation patterns of Mandarin, the best we
can do is to single out some basic English intonation patterns and try
to find their equivalents—or, we should say "near" equivalents, patterns
in Mandarin such as in the following:

English	Mandarin
1) The Rising falling Intonation:	1) General lowered level of pitch: the falling ending is joined on successively after the word-tone is completed.

/ 2 3 1 ↓/

2   3   1 ↓
Ex. He is a professor.   Ex. ˋtā ,shr .ge jiān shòu.

The key to such a pattern is the location of the sentence primary
stress. The high pitch normally coincides with the last lexical stress.
The /2 3 1 ↓/ pattern is usually used in simple statement and question
word questions. It signals that the utterance is complete. In Mandarin,
the falling ending is not added simultaneously to the last syllable of a
sentence, but is joined on successively after the word-tone is completed.
This type of statement-of-fact sentence has an additional feature: it
ends with a slight end-accleration. According to Chao,[74] the same falling
ending expresses in Chinese the following functions: (1) enumeration
(2) protesting statement (3) satisfaction over a new situation and (4)
affected exclamation.

2) The Rising Intonation:	2) General raised level of pitch: the rising ending is joined on successively after the word-tone is ended.

/ 2 3 31 /

2   3   3 ↓
Ex. Is he a professor?   Ex. tā ,shr .ge jiān shòu (.ma)?

In English, rising intonation is normally used at the end of questions which do not begin with an interrogative word. The voice normally goes up to a high pitch on the last sentence stress, just as in the rising-falling patterns. The difference between the two lies in the fact, that in rising intonation, the syllables which follow the rise are pronounced on high pitch too. It suggests that something further must be said, either by the speaker or by the hearer.[75] In Mandarin, rising ending is also used as a question signal. It is joined on successively after the word-tone is ended. If the final syllable is the toneless question particle /ma/, it may be prolonged. We shall discuss it in detail in the next chapter.

3) The Falling Intonation:

/'3 2 1↓/

3   2 1
Ex. Open the door!

3) General lowered level of pitch: the falling ending is joined on successively after the word-tone is ended.

Ex. ˊkāi mén!

In English, falling intonation is normally used in command or advice, etc. The voice usually goes down to a low note on the last syllable. The subject "you" is often omitted. In Mandarin, the pitch applied to this kind of phrase or sentence differs from the statement-of-fact sentences mentioned above. The degree of stress on the first stressed syllable of the command is usually heavier than that of the statement-of fact sentences. It ends with a slight acceleration.

4) Sustained Intonation:

/2 3 2→(2 3 1↓)/

2   3 2 → 2
Mary has gone (but she...)

4) Slight retardation: it is applied to the end of a conditional clause.

Ex. Mǎi ˊi chǐn tsòu .le (dàn

shr̄ tă...)

English uses its /→/ sustained juncture to create the impression of
incompleteness. The Peiping dialect applies slight retardation at the
end of a conditional clause. In this case slight acceleration is applied
to the beginning of the dependent clause.

2.17 These examples may suffice to demonstrate the variety of the
different pitch sequences in the Mandarin on the right side and the mon-
otony of the English "melodious" intonation on the left side. In the
Chinese sentences listed, tone sandhi has not been indicated. Mandarin
speakers apply tone sandhi probably automatically without realizing at
all that there is an actual change of pitch.(76) This is possible, because
tone sandhi has no semantic function in Mandarin. From the foregoing
contrastive analysis of English and Mandarin intonation, we can conclude
that a Mandarin speaker has difficulty in speaking authentic English;
his major concern will be to learn and to apply one fixed pitch pattern
e.g. /2 3 1 ↓/ when trying to master the English "colorless" intonation
patterns.

1.18 Summary and Conclusion

The following summary of points of contrast has been derived from
the preceding descriptions. A major source of difficulty lies in points
of difference in the intonational systems of the two languages. The
following are the predictions of difficulties, considering those dif-
ferences.

English	Mandarin
1. English is an intonation language.	1. Mandarin is a tone language.
2. Stress is phonemic in English.	2. Stress is not phonemic in Mandarin.

3. English has a variety of word lengths and shifting transition boundaries.	3. Mandarin has mostly singly-syllable words with strongly marked boundaries.
4. English has four phonemic pitch levels.	4. Mandarin has three gliding tones and one level tone.
5. English has a stressed-timed rhythm.	5. Mandarin has a syllable-timed rhythm.
6. English has three terminal junctures; /↗↑↓/.	6. Mandarin has two terminal junctures; /↑↓/.
7. Pitch is distributed over phrases and sentences.	7. Pitch is distributed over morphemes and words.

1.19 From the above summary of differences we can draw several conclusions. These are the main problems of English intonation to speakers of Mandarin Chinese.

1. In English, intonation patterns /231↓/, /233↑↓/, /321↓/, and /232↗/ are predominant, while in Chinese speaker's imitations, the distinction between the stressed and unstressed syllables is not clear. They tend to speak English with a strong Mandarin accent--each syllable is given nearly the same importance.

2. A Mandarin speaker learning English expects pitch to attach to morphemes and words.

3. Chinese have considerable difficulty in identifying the word units of English in actual utterance, because of the variety in the length and structure of English words and the less obvious word boundaries.

4. In English there is a difference in terminal juncture between
   $\begin{array}{cccc} 2 & 3 & 1↓ \end{array}$ $\begin{array}{cccc} 2 & 3 & 2→ \end{array}$
   /He's coming / and /He's coming / (but he'll be late). In Mandarin

imitation, there is no significantly observable difference between
the two.

5. A Mandarin speaker hears clearly the difference between a rise /24/
and a fall /41/ but he will not hear the difference between /12/,
/14/, /42/ and /43/.

1.20 In summing up, the approximation of English intonation patterns
constitutes a serious problem for Mandarin speakers. The main difficulty
lies in mastering the pitch distribution and stress-timed rhythm, be-
cause English intonation is affected by rhythmic patterns.

Statement Intonation

Drill 1 Repetition drill

/ 2 3̇ 1↓/ is the usual pattern for statements, and questions con-
taining a question word. It is the most common intonation pattern in
American English. (See the question intonation next chapter)

Listen: I'm a student.

                   I'm going to town.

                   I want some apples.

                   I'm studying French.

Repeat: I'm a student.

                   I'm going to town.

                   I want some apples.

                   I'm studying English.

                   You're a teacher

                   You're going to school.

                   You're tired.

                   You go to the office.

He's an economist.

He's going to America.

He studies English.

He needs some help.

We're students.

We're studying hard.

We're driving the car.

We got off the bus.

They're Chinese.

They're studying English.

They want some coffee.

Drill 2 Repetition drill

/ 3 2 1↓/ is the basic pattern for commands.

Listen: Open the door.

                 Close the window.

                 Go straight ahead.

Repeat: Open the door.

                 Close the window.

                 Go straight ahead.

                 Bring me a drink.

                 Come over here.

                 Go to your room.

                 Get out of here.

                 Leave me alone.

                 Work hard.

                 Go to the office.

Come here.

Fire.

Open the gate.

Shut the door.

Don't open the door.

Bring me a cup of coffee.

Go back to school.

Speak English.

Get your baggage.

Follow me.

Put on your shirt.

Don't close the window.

Drill 3 Repetition drill

/ 2 3̌ 2→/ is the basic pattern for the utterance that is non-final.

Listen: It was free, but nobody cared.

                  It was red, but nobody said so.

                  It was cool, but they didn't tell us.

Repeat: It was free, but nobody cared.

                  It was red, but nobody said so.

                  It was cool, but they didn't tell us.

                  It was Joe, but nobody knew that.

                  He can sleep, but he doesn't want to.

                  They can drive, but they don't like to.

                  They looked for the taxi, but nobody found it.

                  She wanted some coffee, but we didn't have any.

                  He found the school bus, but nothing else.

We bought the fountain pen when we went to town.

I stood near the airplane for nearly an hour.

It was wonderful, but nobody said so.

We bought the fishing pole, when we went to the store.

It was dangerous, but nobody said so.

I'm going to New York to buy some clothes.

Betty was here but not her mother.

You can take that chair and I'll take this one.

She wanted some paper, but we didn't have any.

He's very handsome, but he's not very strong.

Under the circumstances, you'd better retreat.

CONTRASTIVE ANALYSIS OF THE PITCH PATTERNS

OF ENGLISH AND MANDARIN

3.0 The Question in English.

What is a question in English? According to Fries,[77] "a question is an utterance directed toward eliciting an oral response." It is signalled by certain word order arrangements, the presence of question words, and by intonation patterns, especially at utterance final. We shall discuss all these aspects of the question as it is signalled in spoken American English.

3.1 In describing English structure, we have applied the idea of form-classes and function words proposed by Fries in The Structure of English.[78] Fries recognized only four parts of speech among the words with lexical meaning, roughly corresponding to what the traditional grammar calls nouns, verbs, adjectives, and adverbs. He called them Class I, Class II, Class III and Class IV words. To these, he adds a relatively small group of function words which he divides into fifteen groups.

3.2 We shall first summarize the main syntactic patterns for indicating questions in English. Next we will investigate what some linguists have said about the distribution of the rising and falling intonation in questions.

3.20 "Yes or No" Questions

1) Statement Order Questions: $\underline{I + II}$ (Subject + Predicate)

Ex. He is a waiter? He isn't a waiter?

2) Simple Inversion: II (be) + I

Are you a teacher? Aren't you (or Are you not) a teacher?

3) Combination with function word: F.W. + I + II

Ex. Do (don't) you like it?

4) Reversal of first auxiliary of compound verb with subject:

II + I + II

Ex. (1) Be as the first element.

Are (aren't) you studying?

(2) Have as the first element.

Have (haven't) you seen a tiger?

(3) Will, can, could, may, might etc. as the first
element.

Will (won't) he go?

3.21 Question Word Questions

1) Q.W. + II + I + II

Ex. When did he call me?

2) Q.W. (Who, what, which as Class I) + II

Ex. Who (what, which, etc.) came?

3) Q.W. + I + II (Which, how much, how many, what)

Ex. How much mail came?

4) Q.W. + II (Be only) + I

Ex. Who (what, which, where, when, etc.) is it?

5) Q.W. + II (Be only) + III

Ex. Who is married?

3.22 Tag Questions

1) $(I + II)$, $+$ (1st auxiliary + neg. + I)

   Ex. He dances, doesn't he?

2) $(I + II + neg.) + (1st auxiliary + I)$

   Ex. He doesn't dance, does he?

3.23 Alternative Questions (with or)

This conjunction connects grammatical equivalents--form-classes, position-classes or function words or grammatical structures.[79]

Ex.. Does she dance lightly or gracefully? (form-class)

Was the witness walking to or from the scene of the accident? (function word)

Can you sleep on the beach or in the woods? (grammatical structure)

3.24 Echo Questions

Fries defines echo question as "a repetition of a whole or a part of a statement sentence is uttered by another speaker, usually immediately after the statement has been made"[80]

Ex. 1st speaker: Bob usually wrote his own speeches.

2nd speaker: He wrote his own speeches?

3.3 Pitch Patterns of English Questions

3.30 "Yes or No" Questions /2 3 3 ↑/ or /2 3 1 ↓/

Such questions commonly end with a rising pitch, but a falling one is often heard too. When a falling pitch is used, such questions are more like commands, though a verbal answer is still wanted--"Tell me if that was it". When a rising pitch is used, the effect tends to be one of greater sympathy and politness. Professor Lee remarks:

> Politeness is the rule at mealtimes, at least when
> guests are present, and the sentence "Would you pass
> the salt, please?", if using rising pitch, would
> sound more agreeable than of falling one which re-
> sembles a command. The falling ending might be used,
> impatiently, after the polite request had been several
> times ignored.[81]

There is a rather widespread assumption that questions can be signalled

by statements but that the signal is then a rising final tone. Bloom-

field attaches a "question pitch" to utterances:

> Within the domain of final pitch we can distinguish
> several phonemic differences. "It's ten o'clock."
> as a statement differs from "It's ten o'clock?" as
> a question; the latter ends with a rise, instead of
> a fall.[82]

3.31 Question Word Questions $/2\ \overset{\circ}{3}\ 1\downarrow/$ or $/2\ \overset{\circ}{3}\ 3\uparrow/$

Professor Fries has a description of the distribution of the

rising and falling pitch in this type of question. He states:

> It is the function word itself that gives the signal
> of the question, not the intonation pattern. Both
> rising and falling pitch sequences occur with these
> single words; both are questions. The situations,
> however, in which the rising intonation occurs differ
> clearly from those in which the falling intonation
> occurs. The rising pitch sequence occurs in those
> situations in which the question seeks a repetition
> of a portion of utterance immediately preceding.
> The falling pitch seeks additional information.[83]

Sweet[84] remarks, in somewhat a different way, that "questions which are

begun with an interrogative word have the falling tone because they can

be regarded as commands". Elsewhere, he says "The brevity and impera-

tiveness of special interrogative sentences such as 'What is his name?'

is often avoided by substituting a longer general interrogative form:

'Can you tell me what his name is?' This falling intonation is often

perfunctory, and will be taken as such." We can conclude that questions

that begin with interrogative pronouns may have either a rising or a

falling intonation, but most of them have a falling terminal. When such questions have a rising intonation, they either elicit a repetition of the previous utterance or indicate politeness.

3.32 Tag Questions / 2 ʒ 1↓3 1↓/ or /2 ʒ 2→ 2 3↑/

P. A. Erades[85] says of these tag questions: "They are confirmative questions, which invite the person addressed to express his agreement with the statement made. They are negative when the statement is positive, and vice versa. Confirmative questions are always verbal in character, never pronominal." On such grammatical combinations with their meaning of confirmation, the various intonation contours with their regular meanings may be superimposed. When the question indicator is giving the final intonation contour, the meaning of the utterance can be altered. Note the following examples:

(1) Falling final contour: Confirmative in the sense that Mr. Erades[86] described it: /2 ʒ 1↓3 1↓/

Ex. /2 ʒ   1↓ 3   1↓/

He dances, doesn't he?

/2   ʒ   1↓ 3   1↓/

He doesn't dance, does he?

Both these utterances with falling final contour ask the listener to agree to the statement. The speaker is saying in effect, "I know about his dancing and I suppose you do, but I would like to have you agree with me."

(2) Rising final contour: /2 ʒ 2→ 2 3↑/

Ex. /2 ʒ   2→2   3 ↑/

He dances, doesn't he?

/2   ˊ3   2→2   3 ˆ/

·He doesn't dance, does he?

Here the speaker is signalling more than a desire for agreement. He is saying, in effect, "I'm not sure that he dances; I'm somewhat surprised; I would really like to be informed about this."

3.33 Alternative Questions /2 ˊ3 3ˆ2 ˊ3 1 ↓/ or /2 ˊ3 3ˆ2 ˊ3 3 ˆ/

Questions which ask for choice to be made have characteristic pitch patterns if it is intonation which is relied upon to show that choice is required. There are two pitch patterns as follows:[87]

(1) Rising pitch is used for all except the final alternative: /2ˊ3ˆ2ˊ3ˊ1↓ /

Ex. /2   ˊ3   3ˆ2 ˊ3   1↓/

Will you have sugar or lemon?

This pattern signals a choice of two possibilities. It means "which of the two do you want, sugar or lemon?"

(2) Rising pitch: /2 ˊ3 3ˆ2 ˊ3 3ˆ/

Ex. /2   ˊ3 3ˆ2 ˊ3   3ˆ/

Do you want tea or coffee?

This pattern proposes a yes-or-no question. The meaning is "Do you want tea or coffee in preference to something else?"

3.34 Echo Questions: /2 ˊ3 3 ˆ/

The echo question contains the same word-order patterns as the statement of which it is a partial echo, but, by means of a contrast of the intonation or pitch sequence at the end, it becomes a question. Whether the original question ends with a rising pitch or a falling one, there is a tendency (but no more) for the "echo" to end with a rising pitch.[88] Sometimes there is no utterance of which the sentence with a

rising intonation is an echo.[89]

Ex. 1st speaker: /2   3́   1↓/

           He is a teacher.

    2nd speaker: /2   3́   3↑/

           He is a teacher?

3.4 There are still other question types, of course, not has
everything possible been said concerning the types reviewed. Intonation
is in general a complex affair, far from having been thoroughly described,
and to study it adequately the learner must observe usage in the numerous
situations of everyday life.

3.5 The Question in Mandarin

The discussion in Chapter Two on Mandarin tone and intonation sug-
gests that the searcher for an intonation to signal questions would have
to proceed with great care. We shall summarize the main syntactic pat-
terns for indicating questions in Mandarin first, and then investigate
the role of pitch in signalling questions. In the examples to follow,
the Mandarin utterances have been written in the Romanized script used
in Fries and Shen, Mandarin Chinese for English Speakers. The four
tones symbolized as /→, ↗, ↙, ↘,/ from tone 1 to tone 4. S. has been
used to represent subject and V. to represent verb in the Mandarin study
since there is no form classification comparable to the English cate-
gories. The basic question patterns in Mandarin is S + V. Question
order as such does not really exist. We shall discuss them in detail
in the following:

3.50 "Yes or No" Questions

The commonest type of question in Chinese is made by adding

the particle /ma/ to a statement.[90] The word order of the sentence is not changed. When other question words, negative function word or question word are present, it is not necessary to use /ma/. A question is sometimes signalled in which /ma/ has been omitted.

Ex. 1) Statement: tā hěn lèi.   He is very tired.
                  (he very tired)
     2) Question: tā hěn lèi .ma? Is he very tired?
     3) Without /ma/: tā hěn lèi? He is very tired?

A completed action is formed by adding the function word .le after the verb. Ex. tā lèi .le .ma? Has he become tired?

3.51 Question word Questions

Question words which fit into the pattern of reversal in English do not require a change in word order in Mandarin.[91] They occupy the same position in the question that the answer they elicit will occupy. Chao gives us a rule for this pattern: "Ask as you would be answered".[92] Thus "jèi .shr shenma?" 'This be what?' -- What is this? because the answer is not in the order 'A book is this' but as in English, 'This is a book'. The most common question patterns will be illustrated in the following:

(1) S + V + Q.W.
     Ex. nǐ .shr shéi?   Who are you?
     (you be who)

(2) Q.W. + S + V
     Ex. wèi.shenma nǐ lái?   Why do you come?
     (why you come)

(3) S + Q.W. + V
     Ex. nǐ dzenma lái?   How do you come?
     (you how come)

(4) Q.W. + V

    Ex. ᴢ̌ᴇⁿᵐᵃ chīˏ .de?   <u>How</u> do you eat?

    (how to eat)

(5) S + V + Q.W. + Substantive

    Ex. nǐ kàn duōshàu shū?   <u>How many</u> books do you see?

    (you see how many book)

    nǐ chīˏ duōshàu fàn?   <u>How much</u> rice do you eat?

    (you eat how much rice)

    Note: <u>How much</u>, <u>how many</u> are not differentiated in Chinese.

    3.52 Tag Questions (dwèi bu dwèi, shr bu shr, V nèiíou V, V neg V)

There is no correlation of tag with verb in the sentence as in English.
As Professor Chao has pointed out, this tag is comparable to the invariable
French "n' est-ce pas".[93] The tags, dwèi bu dwèi, (agree or not agree),
and shr bu shr (isn't it) etc. remain the same, whether it is affirmative
or negative.

Ex. 1) tā hěn lèi, dwèi bu dwèi?   He is very tired, isn't he?

    2) tā bu hěn lèi, shr bu shr?   He is not very tired, right?

Another common type of question is choice-type, formed by coupling the
positive and negative forms of a verb. All verbs can be negated by the
adverb bù, except íou (have), which is negated by the adverb méi.[94] The
nearest comparable pattern to Mandarin V neg V in English is the tag
question.

Ex. tā lèi bu lèi?   Is he tired? (or not tired)

    (he tired not tired)

    nǐ íou méi íou shū? Do you have books? (or do not have books)

    (you have not have book)

    3.53 <u>Alternative Questions</u>

3.53 <u>Alternative Questions</u> (shr...shr, shr, shr ...haishr, húo ǰe)

This type is a choice of alternatives which are added by put-

ting the alternatives in coordination by juxtaposition, as nǐ chī-fàn

chī mìàn? "Will you eat rice or noodles?" Chao remarks:

> A much more frequent form consists in adding a
> verb, shr "it is a case of" or haishr" "it is
> after all a case of" (both usually in neutral
> tones), before both terms or before the second
> term only. Thus,

1) nǐ ,shr chī-fàn ,shr chī-mìàn?
2) nǐ, chī-fàn ,shr chī-mìàn?
3) nǐ chī-fàn ,haishr chī-mìàn?[95]

In addition to the four "or" patterns listed above, there is one more as

follows: nǐ chī bu chī fàn húo ǰe chī mìàn .a?

(either of the two)

3.54 <u>Echo Questions</u>

This type of question repeats the speaker's utterance as a

response. Usually the final particle /ma/ is added.

Ex. 1st: lǐbài i méi iǒu.   There isn't any (class) on Monday.
    (week one no have)
  2nd: lǐbài i méi iǒu (ma)?   There isn't (class) on Monday?

3.6 <u>Pitch Patterns in Mandarin Questions</u>

Two matters relating to question pitch have been partially presented

by the investigation reported in Chapter Two. The first is that when a

question is asked in Chinese, and the usual grammatical signals have been

omitted, tonal addition raises the word tones sufficiently to suggest a

"rising" contour. This then acts as the question signal. The second is

the repetition signal. When an utterance is not clearly understood the

first time, it is repeated with the meaning "did you say" (the utterance).

This meaning is signalled when the utterance is repeated in a higher register

--that is, the tones retain their relative pitch, but the entire utterance is raised, and the volume of the voice is increased.[96]

3.7 These somewhat restricted uses of "pitch" are about all that can be claimed in the present study of the question in Mandarin. What is expressed by pitch in English questions is sometimes expressed by the addition of one of the grammatical particles /ma/, /a/ , /ba/ etc. in Mandarin. Interrogative and negative function words added to the statement utterance are the signals of interrogation in Chinese.[97]

3.60 "Yes or No" Questions

Final particle /ma/ is pronounced in neutral tone. When /ma/ is omitted, the pitch on the last syllable word is raised in addition, and constitutes the question signal. For example, "tā hěn lèi ,ma?" and "tā hěn lèi?" 'Is he very tired?'

3.61 Question-Word Questions

This type of question has an additional intonational feature: it ends with a slight end-acceleration. Like English, it is the interrogative word itself that gives the signal of the question, not the pitch pattern. The pitch applied to this kind of sentence is usually the falling ending which is joined on successively after the word-tone is ended. For example, "tā shr shéi?" 'Who is he?'.

3.62 Tag Questions

In question pattern--V neg V, the stress always comes on the first or positive half.[98] For example, "tā lèi bù lèi?" 'Is he tired?'. The negative particle bù is pronounced with a falling tone, except when it is followed by another falling tone, in which case it is changed to a rising tone.[99] For example, bù gāu (not high), bù hǎu (not good) but

bū lèi (not tired). This change in tones is most noticeable when the negative form of the verb is stressed.

3.63 Alternative Questions

As we have mentioned above, shr 'it is a case of' and haishr 'it is after all a case of' are both usually pronounced a neutral tone. For example, nǐ shr lèi haishr è? 'Are you tired or hungry?' Another common pattern, "huò je" 'either of the two', is pronounced with a 4th tone on huò and 2nd tone on jē. For example, "nǐ jàu chī fàn hái huò jē chī miàn? 'Do you want to eat rice or noodles?'

3.64 Echo Questions

In Mandarin, a special feature is used: /ma/ plus any unstressed syllable preceding it are very low pitched. According to Chao,[100] only in cases of surprise or sarcasm will the rising ending be applied to the final particle /ma/.

3.7 Question Patterns Compared

The following chart will show the contrasts in signals that a comparison of question patterns and their intonation contours in two languages reveals. This comparison only points up important areas to be stressed in teaching English to Chinese speakers.

3.8 Notes on the Comparison Chart

1. "Yes or No" Questions

The question order of "Yes or No" questions in English has more variables than that of Chinese. The addition of a function word—/ma/ to the statement order makes the question pattern in Mandarin. The pitch of the last syllable /ma/ is always a neutral tone. If /ma/ is

English	Mandarin

1. "Yes or No" Questions

(more rise than fall)

1) Statement order: I + I
2) Question order: II + I
   (1) simple inversion: II + I
   (2) combination with P. W.
       P. W. + I + II
   (3) reversal of 1st element
       of combinations:
       II + I + II

1. "Yes or No" Questions

(raise the pitch on the last syllable, or use /ma/ with neutral tone)

1) Statement order: S + V
2) Question order: S + V + ma
   (1) no equivalent
   (2) S + V + .ma (P.W.)

   (3) S + V + .le + .ma (P.W.)
       (a completed action)

2. Question word Questions

(more fall than rise)

1) Q.W. + II + I + II
2) Q.W. + II
3) Q.W. + I + II
4) Q.W. + II + I
5) Q.W. + II + III

2. Question word Questions

(falling ending, and a slight end-acceleration)

1) S + V + Q.W.
2) Q.W. + V
3) Q.W. + S + V
4) S + V + Q.W. + (Substance)
5) S + Q.W. + V

3. Tag Questions

1) (I + II), (1st aux. + neg + I)
2) (I + II + neg) + (1st aux. + I)

3. Tag Questions

(the stress on the first or positive half in V neg V)

1) S + V + neg V (V meiou V)
2) duei bu duei
   shr bu shr

4. Alternative Questions

(rising falling or rising)

This conjunction connects grammatical equivalents.

4. Alternative Questions

(shr, .haishr are usually pronounced with neutral tone; huo je with 4th tone on huo and 2nd tone on je.)

(the same as in English)

5. Echo Questions

(a rising pitch)

Repetition of a whole or a part of a statement sentence

5. Echo Questions

(use /ma/ or with rising ending)

(the same as in English)

omitted, the last syllable word is raised by addition. When the /ma/
question is compared with the do, does, did question of English, another
difference in the languages is shown: the English function word signals
a question by its position, but it is also signals present or past time,
and it is tied to the Class I subject of the question utterance.[101]
Another difference shows in the role of pitch in signalling questions.
In English, the question often ends with a rising pitch (instead of a
neutral tone), but a falling one is also used on some occasions.

2. Question word Questions

As the chart shows, the position of the interrogative in
Mandarin is more variable than that of its counterpart in English. We
have mentioned that Mandarin question words occur in the question utter-
ance in the same position that the response they elicit will occur.
(See p. 38-39). In English, question words are commonly placed at the
beginning of a question. When asking the question 'Who are you', the
Mandarin speaker may apply his own pattern $S + V + Q.W.$ and says 'You
are who?' which sounds unnatural to English. As for the pitch feature,
in Mandarin, the question ends with a falling pitch which is joined
successively after the word-tone is ended, while in English, both ris-
ing and falling pitch are used. But most of them have a falling intona-
tion like Mandarin Chinese.

3. Tag Questions

This type of question, $S + V + neg + V$, replaces the question
made with the function word /ma/ in Mandarin. The negative function word
bú occurs with all verbs in their general form except the verb iǒu (have)
which is negated by méi. This disjunctive question is very near to the

English tag question. But the real tag question in Mandarin is in the

following patterns: S + V + duèi bu duéi (or shr bu shr etc.). Here

the subject and verb are not tied syntactically to the tag, and they may

be about anything. Mandarin tag questions, as a rule, have a range from

high pitch to half high pitch. The stress is always on the first or posi-

tive half in V + neg + V question pattern. In English, the tag questions

are divided into two kinds: if the statement is affirmative, the attached

question is negative; if the statement is negative, the attached question

is affirmative. The subject and verb are tied structurally to the tag.

The Mandarin speaker has difficulty in using these question patterns.

He is accustomed to use a tag question without any syntactic relation-

ship to the statement. For example, "You don't like him, are you?' As

for other different features, English has falling final and rising final

pitch varying with the meaning of the utterance.

4. Alternative Questions

The "or" conjunction connects the grammatical equivalent both

in English and Chinese. In English, the question, "Will you eat rice or

noodles?' means two things. According to Chao[102], if the pitch rises on

'rice' and falls on 'noodles' it is a disjunctive question and the trans-

lation in Chinese will be nǐ chr̄-fàn haishr chr̄-miàn a? to which the

answer may be chr̄-fàn 'eat rice' or chr̄-miàn 'eat noodles'. With a gen-

erally rising pitch it is a "yes-or-no" question and the Chinese will be:

nǐ chr̄ bu chr̄ fàn hǔo je chr̄ miàn a? to which the expected answer will

be chr̄ (yes, I will eat) or bu chr̄ (no, I'm not hungry). In the first

case 'or' is translated by haishr; in the second case by hǔo je. Here

we can conclude that what is expressed by intonation patterns in English

alternatives is indicated by grammatical construction in Mandarin.

5. Echo Questions

English employs the rising pitch in echo questions, while Mandarin employs exactly the opposite feature: /ma/ plus any unstressed syllable preceding it are very low pitched. Only in cases of great surprise or sarcasm will the rising ending be applied to the final particle.

3.9 Summary and Conclusion

The following summary of points of similarity and points of contrast has been derived from the questions discussed above. It serves as a check list for the teacher who would like to get some basic ideas in teaching English questions to Mandarin speakers.

I. Points of similarity

1. Statement question (without /ma/) with rising pitch at the end of sentence.

2. Existence and function, (but not position) of question words.

3. "Or" conjunction connects grammatical equivalents.

4. Echo question repeats a whole or a part of a statement sentence.

II. Points of Contrast

1. Tones and tone sandhi, possible sentence intonation in Mandarin, expressive sentence intonation in English.

2. What is expressed by intonation in the alternative questions in English is indicated by a grammatical construction in Mandarin.

3. Function of word order in English questions: (II + I); and Mandarin questions: (S + V).

4. Uninflected function words in Chinese, inflected in English.

5. In English, the Class I word and Class II word are tied syntacti-
cally to the tag (i.e., in concord), while in Mandarin, a tag
question has no structural relationship to the statement.

3.10 From the above summary we can draw several conclusions. These
can be used as the points of emphasis in teaching English questions to
Mandarin speakers.

1. Role and distribution of form classes and their substitutes.

   1) Signals of inflection for Class I, II, III, and IV words.

   2) Signals of position.

   Since there is no form classification in Mandarin comparable
   to the English categories, Chinese students have difficulty
   in distinguishing Class I, II, III and IV words.

2. Tag questions in English have falling final and rising final intona-
tion patterns: /2ˇ51↓ 31↓/ and /2ˇ32→ 23 ↓/. Chinese have to prac-
tice these new patterns.

3. In intonation patterns, English distinguishes alternative questions,
/2ˇ33↑ 231↓/ from /2ˇ33↑ 2ˇ33↑/, while in Chinese they are distinguished
by different grammatical constructions instead of pitch patterns.

4. Use function words such as do, did, does to form questions. Chinese
students are not familiar with this kind of inflected function words.

5. In English, question words are commonly placed at the beginning of
. a question, while in Mandarin placement of the question word is more
variable than that of its counterpart in English. Chinese students
tend to say "You go to where?" (Chinese interrogatives can be put
after the verb or before the subject; sometimes they are put between
them.)

6. Chinese have difficulty in forming "Yes or No" questions by a simple
   inversion of a Class I word and Class II word, because the basic
   pattern of a question in Chinese is $\underline{S + V}$.

Question Intonation

Drill 1   Repetition drill

/ 2 $\widetilde{3}$ 3↑/ is the usual pattern for questions with a question word.
It ordinarily means the questioner wants the answer <u>yes</u> or <u>no</u>.

Listen:	Is it free?
	Is it cheap?
	Is it meat?
	Is it milk?
Repeat:	Is it free?
	Is it cheap?
	Is it meat?
	Is it milk?
	Did she sleep?
	Did she dream?
	Did she pay?
	Did she win?
	Are you studying?
	Are you going?
	Are you coming?
	Are you reading?
	Have you seen a tiger?
	Have you seen a dragon?
	Have you seen a monster?

> Will it move?
>
> Will it suit?
>
> Will it do?
>
> Will it shoot?

Drill 2 Repetition drill

/ 2 3 1↓/ is the usual pattern for questions with interrogative words.

Listen: What is that?

                      Who are you?

                      Which is the library?

                      Where is the building?

Repeat: What is that?

                      Who are you?

                      Which is the library?

                      Where is the library?

                      What did you bring?

                      What did you want?

                      What did you find?

                      When can I study?

                      When could you do it?

                      What can I do for you?

                      Where can I find him?

                      Who came?

                      What came?

                      Which came?

                      How much mail came?

What boys came?

How many boys came?

Who is it?

Where is it?

When is it?

Drill 3 Repetition drill

/ 2 3̃ 1↓ 3 1↓/ or / 2 3̃ 2⟶ 2 3↑/ is the usual pattern for tag questions.

Listen:

He dances, doesn't he?

He doesn't dance, does he?

He likes smoking, doesn't he?

He doesn't like smoking, does he?

Repeat:

He dances, doesn't he?

He doesn't dance, does he?

He likes smoking, doesn't he?

He doesn't like smoking, does he?

You're hungry, aren't you?

You aren't hungry, are you?

You want a chair, don't you?

You don't want a chair, do you?

It will be easier, won't it?

It won't be easier, will it?

You have a new car, haven't you?

You haven't a new car, have you?

There is a bridge, isn't there?

There isn't a bridge, is there?

They decide to stay here, do they?

They don't decide to stay here, don't they?

They ate their breakfast, didn't they?

They didn't eat their breakfast, did they?

She is a teacher, isn't she?

She isn't a teacher, is she?

Drill 4 Repetition drill

/ 2 5 3↑2 5 1↓/ or / 2 5 3↑2 5 3↑/ is the usual pattern for

question which asks for choice.

Listen: Will you have sugar or lemon?

Do you want tea or coffee?

Does he want red or blue?

Repeat: Will you have sugar or lemon?

Do you want tea or coffee?

Does he want red or blue?

Are you going to America or Japan?

Is he learning English or French?

Drill 5 Repetition drill

/ 2 5 3↑/ is the usual pattern for echo questions.

Listen: 1st speaker: He is a teacher.

2nd speaker: He is a teacher?

1st speaker: Bob wrote a novel.

2nd speaker: He wrote a novel?

Repeat: 1st: He is a teacher.

2nd: He is a teacher?

1st: Bob wrote a novel.

2nd: He wrote a novel?

1st: Mr. Smith goes to Texas.

2nd: He goes to Texas?

1st: There is no class today.

2nd: There is no class today?

1st: They have finished their work.

2nd: They have finished their work?

FOOTNOTES

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INTONATION PATTERNS IN ENGLISH AND MANDARIN CHINESE
WITH SPECIAL REFERENCE TO THE ROLE OF PITCH
IN SIGNALLING QUESTIONS

by

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AN ABSTRACT OF A MASTER'S REPORT

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ABSTRACT

Purpose: This report is intended to help speakers of Mandarin
Chinese in learning English intonation patterns by means of modern
contrastive studies between English and Mandarin. For the purpose of
this study, we have singled out one of the most difficult intonation
problems which speakers of Mandarin Chinese encounter in learning
English intonation, that is, the identification of the role of pitch
in English questions. This particular problem was chosen because the
important features of English pitch patterns for questions are quite
different from those of Chinese. Teaching this subtle aspect of langu-
age has been one of the most difficult tasks for the teachers of English
to Chinese.

Procedure: The fundamental idea of the present work is given by
Fries as follows: "The most effective materials are those that are
based on scientific description of the language to be learned, care-
fully compared with a parallel description of the native language of
the learner." First, we established a linguistic analysis of English
and Mandarin intonation systems and then a comparison of intonation
patterns of the two languages to see how they correspond or differ.
After that, we chose pitch patterns of questions for special discussion
using the same methodology. Such contrastive study shows the basic
problems a speaker of Mandarin Chinese encounters in learning English
intonation. A series of drills, based on the predictions, is designed
to help Chinese students acquire the proper English intonation patterns.

Summary of Findings: In this contrastive study, we found that a major source of difficulty lies in points of difference in the intonational systems of the two languages. The following are the basic findings:

English	Mandarin
1. English in an intonation language.	1. Mandarin is a tone language.
2. Stress is phonemic in English.	2. Stress is not phonemic in Mandarin
3. English has four phonemic pitch levels.	3. Mandarin has three gliding tones and one level tone.
4. English has three terminal junctures: /↗↑↓/.	4. Mandarin has two terminal junctures: /↑↓/.
5. Pitch is distributed over phrases and sentences.	5. Pitch is distributed over morphemes and words.
6. English has a stressed-timed rhythm.	6. Mandarin has a syllable-timed rhythm.
7. English has a variety of word lengths and shifting transition boundaries.	7. Mandarin has mostly single syllable words with strongly marked boundaries.
8. English allows no major variations in speech melody.	8. Mandarin is subject to major variation of tone sandhi and neutral tone.
9. English basic question pattern is II + I.	9. Mandarin basic question pattern is S + V.
10. English has inflected function words.	10. Mandarin has uninflected function words.
11. English Class I and Class II words are syntactically tied in concord to the tag.	11. Mandarin has no structural relationship or concord between the statement and the tag.
12. In English, question words are commonly placed at the beginning of a question.	12. In Mandarin, placement is more variable.